QP CODE: 24803834

24803834

Reg No : .....

Name : .....

INTEGRATED MSC DEGREE EXAMINATION, JULY 2024

Fourth Semester

INTEGRATED MSC BASIC SCIENCE-PHYSICS

COMPLEMENTARY - IPH4CM05 - CONCEPTS OF PHYSICAL CHEMISTRY

2021 Admission Onwards

390F31D2

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What is the essential condition for a molecule to absorb microwave radiation?
2. Give any two excellent properties of carbon nanotubes.
3. Define order of a reaction. Give an example.
4. Give the integrated rate equation of a first order reaction.
5. Define coefficient of temperature of a reaction.
6. Define quantum yield of a photochemical reaction.
7. What is meant by cell constant? How is it determined?
8. What is meant by a reversible cell? Give an example.
9. Give the conventional expression for the determination of emf of a cell.
10. Define fuel cell. Give an example.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Discuss the Boltzmann Distribution Law.
12. Briefly explain the reduction technique of synthesis of nanomaterials.
13. Write a note on activated complex theory.
14. Distinguish between homogeneous catalysis and heterogeneous catalysis.

15. Explain Beer Lambert's law.

16. What is meant by molar conductivity at infinite dilution? How is it determined for a strong electrolyte?

17. Explain the conductrometric titration of HCl vs NaOH.

18. Describe the potentioometric method of determining the emf of a cell

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. (a) Derive Beer- Lambert law. What are the causes of deviations from Beer- Lambert law? (b) Discuss different electronic transitions in a molecule.

20. Discuss bottom up approach of synthesis of Nanomaterial.

21. Draw the Jablonski diagram and explain the various types of transitions.

22. (a) Describe the construction and function of a calomel electrode. (b) Discuss the principle underlying potentiometric redox titrations.

(2×5=10 weightage)